PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. VI. JANUARY—JUNE, 1858. No. 59.

Stated Meeting, January 1.

Present, eleven members.

The President and Vice-Presidents being absent, Dr. Franklin Bache was called to the chair.

The annual election for officers of the Society having been held this day, the judges and clerks of the said election presented their report, by which it appeared that the following named gentlemen were elected.

President.

John K. Kane.

Vice-Presidents.

Robley Dunglison,
John C. Cresson,
Isaac Lea,
(In place of Prof. Frazer, who declined a re-election.)

Secretaries.

Charles B. Trego,
E. Otis Kendall,
Frederick Fraley,
John L. Le Conte.

Members of the Council for Three Years.

Alfred L. Elwyn,
John Bell,
Henry Coppée,
Edward King.

Curators.

Franklin Peale,
M. Fisher Longstreth,
Elias Durand.

Treasurer.

Charles B. Trego.

Letters were read:—

From the Royal Society of Edinburgh, dated Dec. 1, 1856, returning thanks for No. 53 of the Proceedings of this Society: and—

From the Proprietors of the Bowditch Library, dated Boston, November, 1857, acknowledging the receipt of No. 55 and 56 of the Proceedings, and Part 1, Vol. XI. of the Transactions.

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Royal Society of Edinburgh. Vol. XXI. Part 4, for the session of 1856–7. 4to.

Proceedings of the Royal Society of Edinburgh. Vol. III. No. 47. Nov. 1856—April, 1857. 8vo.—*From the Society.*

Monthly Notices of the Royal Astronomical Society. Vol. XVIII. No. 1. Nov. 13, 1857. London. 8vo.—*From the Society.*

Memoirs of the Literary and Philosophical Society of Manchester. Second Series. Vol. XIV. London, 1857. 8vo.—*From the Society.*

A New System of Chemical Philosophy. By John Dalton, D.C.L. LL.D. &c. Parts 1, 2, and Part 1 of Vol. II. London. 8vo. —*From the same.*

Meteorological Observations and Essays. By John Dalton, F.R.S. &c., &c. Manchester, 1834. 8vo.—*From the same.*

Journal of the Franklin Institute. Third Series. Vol. XXXIV. No. 6. Dec. 1857. Philadelphia. 8vo.

Practical Views on the Improvement of the Ohio River. By W. Milnor Roberts, C. E. With Remarks by Ellwood Morris, C. E. Philadelphia, 1857. 8vo.—*From the Institute.*

The African Repository. Vol. XXXIII. No. 12. Dec. 1857. Washington. 8vo.—*From the Am. Colonization Society.*

The American Journal of the Medical Sciences. New Series. No. LXIX. January, 1858. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*

The Medical News and Library. Vol. XVI. No. 181. Jan. 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*

Stated Meeting, January 15.

Present, twenty-four members.

Judge KANE, President, in the Chair.

Letters were read:—

From the Society of Arts, Manufactures and Commerce, dated London, Nov. 19, 1857, and from the Royal Asiatic Society, dated London, Dec. 5, 1857, both returning acknowledgments for Vol. XI. Part 1, of the Transactions, and for No. 56 of the Proceedings of this Society:—

From the Boston Society of Natural History, dated Boston, Jan. 7, 1858, acknowledging the receipt of Vol. XI. Part 1, of the Transactions, and No. 57 of the Proceedings: and—

From the Society of Arts and Sciences of Batavia, dated Oct. 20, 1857, in relation to transmitting the publications of this Society.

The following donation was received:—

FOR THE LIBRARY.

Quarterly Journal of the Chemical Society. No. XXXIX. (Vol. X. 3.) October 1857. London. 8vo.—*From the Society.*

Dr. Emerson made a communication on the subject of the Chinese Sugar Cane, as grown in this country. He referred to the difficulty at first experienced in granulating the sugar produced from it; but stated that by recent experiments, as made and described by Mr. Lovering, that difficulty has been obviated and the process rendered so simple as to be easily practised by an intelligent rural producer.

Dr. E. referred to the product of this cane, as stated by Mr. Lovering, and expressed the opinion that its cultivation will be found adapted to a variety of soils, and will ultimately prove to be important and profitable to those who engage in it.

Specimens of sugar produced from this cane were exhibited by Dr. Emerson.

Prof. Cresson remarked that the fibrous substance of the Sorghum is well adapted to the manufacture of paper, and may hereafter be of importance for that purpose.

In addition, Dr. Emerson observed that the scum which rises from the juice of this cane, as well as the leaves from the stalks, afford a grateful and nourishing food for many animals.

Dr. R. E. Rogers expressed the opinion that many of the failures in making sugar from the Chinese Cane, have been owing to the canes not having been cut and pressed at the proper stage of development of the saccharine matter, and to a want of skill in the process of evaporation.

The Society then proceeded to ballot for a librarian for the ensuing year, and Mr. J. P. Lesley was elected.

The Standing Committes of the Society for the year 1858, were then appointed as follows:—

Finance; Mr. Fraley, Mr. Justice, Mr. J. F. James.

Publication; Prof. Trego, Dr. Elwyn, Prof. F. Rogers.

Hall; Mr. F. Peale, Prof. Trego, Prof. Coppée.

Library; Rev. Dr. Stevens, Dr Hays, Mr. Ord.

The list of surviving members of the Society was read. The number on the list, January 1, 1858, was 390, of whom are resident in the United States 286, and in foreign countries 104.

The Society then proceeded to the next stated business of the meeting, the balloting for candidates for membership.

All other business having been concluded, the ballot-box was opened by the presiding officer, and the following named gentlemen were declared to be duly elected members of the Society.

Elia Lombardini, Civil Engineer, of Milan.

Major Henry C. Wayne, of the U. S. Army.

Stated Meeting, February 5.

Present, forty-seven members.

Judge Kane, President, in the Chair.

Letters were read:—

From Major Henry C. Wayne, dated Philadelphia, Jan. 25, 1858, acknowledging the receipt of notice of his election as a member of the Society:—

From the Royal Society of London, dated Aug. 6, 1857;—From the Royal Society of Sciences at Stockholm, dated July 10, 1857;—from the Geological Society of London, dated Dec. 3, 1857;—from the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, dated Newcastle, Dec. 21, 1857; and from the Society of Antiquaries of Edinburgh, dated January, 1858, severally returning thanks for copies of the Transactions and Proceedings of this Society:—

From the Imperial Academy of Sciences at Vienna, dated Nov. 27, 1856, and from the Royal Academy of Sciences at Stockholm, dated July 10, 1857, accompanying donations for the library.

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Royal Society of London, for the year 1856. Vol. 146. Parts 2, 3: with List of Members, Nov. 30, 1856. 4to.—*From the Society.*

Proceedings of the Royal Society of London. Vol. VIII. Nos. 23-26. Nov. 20, 1856—June 15, 1857. London. 8vo.—*From the Society.*

Memoirs of the Royal Astronomical Society. Vol. XXV. Quarto half vol. for 1855-1856.

Monthly Notices of the Royal Astronomical Society. Vol. XVI. Containing abstracts of Papers and reports of Proceedings, from Nov. 1855 to July 1856. London. 8vo.—*From the Society.*

Anniversary Address before the Royal Geographical Society, 25 May, 1857, by Sir R. I. Murchison. London, 1857. 8vo.—*From the Society.*

Quarterly Journal of the Geological Society. Vol. XIII. Parts 2, 3. (Nos. 50, 51.) May, Aug. 1857. London. 8vo.—*From the Society.*

Report of the Twenty-sixth Meeting of the British Association for the Advancement of Science, held at Cheltenham, in August, 1856. London. 8vo.—*From the Association.*

Meteorological Observations made at the Radcliffe Observatory, Oxford, in the year 1855, under the superintendence of Manuel J. Johnson, M.A. Oxford. 8vo.—*From the Radcliffe Trustees.*

The Chemist. Vol. III. New Series (incomplete). Vol. IV. Nos. 37, 38. London, 1856. 8vo.

Lady Willoughby's Diary. London, 1845. 8vo.—*From Mr. Wm. Sharswood.*

Sitzungsberichte der K. Akademie der Wissenschaften: Math. Nat. Classe, Band XX. 2, 3, Heft. Band XXI. 1, 2, Heft. April-July 1856: Register, Band XI-XX.—Phil. Hist. Classe, Band XX. 2, 3 Heft. Band XXI. 1, 2 Heft. April-July 1856: Register, Band XI-XX. Wien. 8vo.—*From the Imp. Acad. Sciences, Vienna.*

Compte Rendu Annuel, adressé à S. Exc. M. de Brock, Ministre des Finances, par le Directeur de l'Observatoire Physique Central, A. T. Kupffer. Année 1855. St. Petersbourg. 4to.—*From the Administration of Mines of Russia.*

Tageblatt der 32 Versammlung Deutscher Naturforscher und Artzte in Wien, 1856. 4to.—*From the Meeting.*

Flora Batava: aflevering 182. Amsterdam. 4to.—*From the Government of the Netherlands.*

Exposition des Operations faites en Lapponie, pour la determination d'un arc du méridien, en 1801, 2, 3; par MM. Ofverboom, Svanberg, Holmquist et Palander. Stockholm, 1805. 8vo.

Års berättelse om Botaniska Arbeten och Upptäckter under ar 1852, J. M. Wikström: under åren 1853, 1854, N. J. Anderson. 8vo.

Berättelse om framstegen i Insekternas, Myriapodernas och Arachnidernas Naturalhistoria för 1853, 1854, C. H. Boheman. 8vo.

Kongl. Vetenskaps—Akademiens Handlingar för 1854.

Kongliga Svenska Vetenskaps—Akademiens Handlingar. Ny foljd. 1 Bandet, 1 Häftet. 1855. 4to.

Ofversigt af Kongl. Vet. Akad. Förhandlingar, 1856. Årg. XIII. 8vo.

Om förflutna tiders Svenska Ordboks-företag. April 9, 1856. 8vo. —*From the Royal Swedish Academy of Sciences at Stockholm.*

The Medical News and Library. Vol. XVI. No. 182. Feb. 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Astronomical Journal: No. 109. (Vol V. No. 13.) Jan. 20, 1858. Albany. 4to.—*From Dr. B. A. Gould, Jr., Editor.*

Journal of the Franklin Institute. Third Series. Vol. XXXV. No. 1. Jan. 1858. Philadelphia. 8vo.—*From the Institute.*

The American Journal of Science and Art. Vol. XXV. No. 73. Jan. 1858. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*

Blunt's American Coast Pilot. Revised January, 1857. 8vo.—*From A. D. Bache, Sup't. U. S. Coast Survey.*

Official Army Register, for 1858. Washington. 8vo.—*From S. Cooper, Adjutant General.*

Proceedings of the First Convention of the Managers and Superintendents of Houses of Refuge and Schools of Reform in the United States, held in New York, May 12, 13, 14, 1857. New York, 8vo.—*From the Managers of the House of Refuge.*

Report of the State Librarian to the Legislature of Pennsylvania, with a Catalogue of Books for the year 1857. Harrisburg. 8vo.—*From the State Librarian.*

Catalogue or Alphabetical Index of the Astor Library. Part 1, Authors and Books, A.-E. (Vol. 1.) F.-L. (Vol. 2.)—*From the Trustees of the Astor Library.*

Dr. Le Conte exhibited specimens of a species of Lycopodium from Honduras, which when dry is contracted in the form of a ball; but when placed in water again expands.

A preamble and resolutions, in relation to the duties and compensation of the Treasurer and Librarian, were offered, and after some amendment, were adopted.

Stated Meeting, February 19.

Present, fifty members.

Prof. Cresson, Vice-President, in the Chair.

Letters were read:—

From the Lyceum of Natural History, dated New York, Feb. 12, 1858, acknowledging the receipt of Nos. 56 and 57 of the Proceedings of this Society:—

From Major J. D. Graham, dated Chicago, Illinois, Jan. 30, 1858, accompanying a donation for the Library:—

From the Publishers of the Journal of Insanity, dated State Asylum, Utica, N. Y. Feb. 3, 1858, with a copy of the Journal and the 13th and 14th Reports of the Managers of the Asylum.

From the Imperial Society of Emulation, dated Abbeville, Jan. 10, 1858, in relation to a copy of their Memoirs.

The following donations were announced:—

FOR THE LIBRARY.

Monthly Notices of the Royal Astronomical Society. Vol. XVIII. No. 2. Dec. 11, 1857. London. 8vo.—*From the Society.*

The Astronomical Journal. No. 110. Feb. 13, 1858. Albany. 4to.—*From Dr. B. A. Gould, Jr., Editor.*

Report of Major J. D. Graham on the Commerce and Improvement of the Western Lake Harbours. Part 1, 1854-5. Part 2, 1856. Senate Document No. 16. Washington. 8vo.—*From the Author.*

Boston Journal of Natural History. Vol. VI. No. 4. Boston, 1857. 8vo.

Proceedings of the Boston Society of Natural History, p. 273-304. Oct. 7—Dec. 16, 1857. 8vo.—*From the Society.*

Journal of the Franklin Institute. Third Series. Vol. XXXV. No. 2. Feb. 1858. Philadelphia. 8vo.—*From the Institute.*

On the Heights of the Tides of the United States, from Observations on the Coast Survey. (Am. Jour. Sci.) 8vo.—*From A. D. Bache, Sup't. U. S. Coast Survey.*

The American Journal of Insanity. Vol. XIV. No. 1. July, 1857. Utica. 8vo.

The Thirteenth and Fourteenth Reports of the Managers of the State Lunatic Asylum at Utica, N. Y. 1856, 1857. Albany. 8vo.—*From the Managers.*

Annual Report of the Board of Directors of the Pennsylvania Institution for the Deaf and Dumb, for 1857. Philadelphia. 8vo.—*From the Directors.*

Thirtieth Annual Report of the Board of Managers of the House of Refuge, 1858. Philadelphia. 8vo.—*From the Managers.*

Observations on the Genus Unio, together with descriptions of New Species in the family Unionidæ. Vol. VI. Part 1. 1857. By Isaac Lea, LL.D. Philadelphia. 4to.—*From the Author.*

The minutes of the Board of Officers and Council at their last meeting were read.

A resolution was offered to rescind the resolutions adopted at the last meeting, defining the duties and fixing the compensation of the Treasurer and Librarian.

An amendment was offered that a committee be appointed to revise the laws of the Society, with a view to a definition of the duties of the offices of Librarian and Treasurer, and a proper compensation for such duties:—and pending the consideration of this subject, the Society was adjourned.

Special Meeting, February 23.

Present, twenty-two members.

Dr. DUNGLISON, Vice-President, in the Chair.

The presiding officer said:—

I have called this meeting to announce officially to the Society, the death of their distinguished President, who expired at his residence, Fern Rock, on Sunday 21st instant, in the 63d year of his age.

I have felt that the Society would desire to do honour to the memory of one, who for a third of a century had been a zealous and effective member; and who, for nearly that length of time, had filled various offices in it, until he became President.

I need not say to this body how faithfully he has always served them; nor shall I dwell, because I doubt not this will be done by others, on his exalted public and private virtues; nor attempt to show how estimable he was in all the relations of life.

To me, personally, his loss is a severe privation. I have known him for thirty years, and I do not call to mind that there has been a single ripple on the smooth surface of our intercourse during the whole of that time. I had for him, indeed, unbounded attachment.

It will be for the Society to take such action on this melancholy occasion as they may deem meet and proper.

Mr. Fraley, with some remarks upon the estimable character and amiable qualities of the deceased, offered the following resolutions, which were unanimously agreed to:—

Resolved, That the Society has heard, with deep and unfeigned sorrow, of the death of its President, John K. Kane.

Resolved, That the Members will assemble at the Hall on Wednesday morning, the 24th instant, at 10 o'clock, in order to attend his funeral.

Resolved, That the President's chair be shrouded in black for the period of six months.

Resolved, That Thomas Dunlap, Esq. be requested to prepare an obituary notice of Judge Kane, to be read before the Society and perpetuated among its records.

Resolved, That a letter be addressed to the family of Judge Kane, expressive of the deep sympathy of the Society in the bereavement which they have sustained, and that it be accompanied by a copy of these resolutions.

Stated Meeting, March 5.

Present, sixty-eight members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Madame A. A. Temminck, dated Leyden, Jan. 30, 1858, giving information of the death of her husband, C. J. Temminck, a member of this Society, aged about 80 years: and—

From Prof. Zantedeschi, dated Padua, Jan. 31, 1858, accompanying a communication "On the measure of the limits of the electrical nervous-muscular sensibility of man, considered in comparison with his mechanical force."

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Zoological Society of London. Vol. IV. Part 4. 1857. 4to.

Proceedings of the same, Part XXIII. p. 65–435. Part XXIV. p. 192. 8vo.—*From the Society.*

Monthly Notices of the Royal Astronomical Society. Vol. XVIII. No. 3. Jan. 1858. London. 8vo.—*From the Society.*

Quarterly Journal of the Chemical Society. No. XL. (Vol. X. 4.) Jan. 1858. London. 8vo.—*From the Society.*

Journal of the Academy of Natural Sciences. New Series. Vol. III. Part 4. Philadelphia. 4to.—*From the Academy.*

The Medical News and Library. Vol. XVI. No. 183. March, 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*

The American Journal of Science and Art. Second Series. Vol.

XXV. No. 74. March, 1858. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*

Report of the Board of Managers of the Eastern Lunatic Asylum, Lexington, Kentucky, 1856–7. 8vo.—*From the Managers.*

Report of the Pennsylvania Hospital for the Insane, Philadelphia, 1857. 8vo.—*From Dr. T. S. Kirkbride.*

The African Repository. Vol. XXIV. No. 2. Feb. 1858. Washington. 8vo.—*From the Am. Colonization Society.*

Documents relative to the Colonial History of the State of New York. Vol. X. 4to.

Census of the State of New York, for the year 1855. Albany, 1857. 4to.—*From the Regents of the University of the State of N. Y.*

A Collection of 13 pamphlets; being chiefly Reports, &c. relative to the Public Institutions and Statistics of Massachusetts.—*From Dr. Edward Jarvis.*

The communication of Prof. Zantedeschi, "On the measure of the limits of the electrical nervous-muscular sensibility of man, considered in comparison with his mechanical force," was ordered to be published in the Proceedings, accompanied by a translation into English.

Della Misura dei Limiti della sensibilità Nerveo-muscolare Elettrica dell'uomo, studiata comparativamente alla forza Meccanica dello stesso.

ESPERIENZE DI ZANTEDESCHI.

La misura dei limiti della sensibilità nerveo-muscolare elettrica dell'uomo, interessa altamente la fisiologia e la terapía. La prima trae argomento a riconoscere in un modo positivo i varii gradi di squisitezza dell'organismo nell'uomo; come ha tratto argomento della squisitezza del nervo acustico dull'estensione della scala dei suoni percettibili, ed ha determinato il numero delle vibrazioni che è necessario alla percezione di un suono grave od acuto. La terapía ritrae una regola direttrice per applicare con prudenza l'elettricità ai varii individui. Io mi ricordo che un individuo avea tale squisitezza nerveo-muscolare da non poter sostenere la forza elettromotrice di un solo elemento rame e zinco montato con acqua salata. Gli elettrodi erano stati applicati al sopracciglio di un occhio affetto da una paralisi di moto.

Nel giorno 27 di Maggio del 1857, trattando di questo argomento

dei limiti di sensibilità nerveo-musculare nell'uomo, io feci allestire la slitta di Dubois Reymond con un elemento ordinario alla Bunsen montato con acido nitrico di 40° B, e con acqua acidulata con acido solforico, di 10° B, e zinco bene amalgamato. La spirale inducente era di filo di rame. Eccone le dimensioni:

Lunghezza della spirale, - - -	$0^m,0800$
Diametro interno della spirale, - -	$0^m,0250$
Diametro del filo di rame, - - -	$0^m,0010$
Lunghezza del filo di rame, - - -	$26^m,0000$

Dimensioni della spirale indotta:

Lunghezza della spirale, - - -	$0^m,0700$
Diametro interno della spirale, - -	$0^m,0600$
Diametro del filo di rame, - - -	$0^m,0033$
Lunghezza del filo di rame, - -	$1187^m,4400$

Il diametro interno della spirale inducente portava in suo seno fili di ferro dolce del diametro di 0,0015, della lunghezza 0,10; e in numero di 190.

Dodici furono gli individui sottoposti a questo esperimento. Non si è trovato alcuna regola costante di decrescimento, nella sensibilatà da aversi il minimo grado negl'individui più avanzati in età. Io prossimo all'età di anni 60 ho sentito l'azioni inducente volto-elettrica alla distanza alla quale qualche giovine di 20 anni circa non sperimentava effetto sensibile. Neppure ho riscontrato che la sensibilità nerveo-muscolare sia in ragione inversa della forza dinamica, esplorata con un dinamometro. Segue una ragione tutta sua propria e speciale, della quale non si può render ragione e siamo costretti a dire, che esiste e nulla più. I limiti esplorati sopra dedici individui furono della distanza di $0^m,04$ e di $0^m,30$ della spirale indotta dall'inducente. Questi estremi darebbéro il rapporto della squisitezza nerveo-muscolare di 1 : 56,25 calcolati secondo la legge della ragione inversa dei quadrati delle distanze. Una tensione elettrica adunque nell'uno, 56,25 volte maggiore produrrebbe lo stesso effetto di una tensione uguale ad uno; che è quanto dire che la squisitezza nerveo-muscolare elettrica dell'uno individuo era 56,25 volte maggiore che nell'altro. Questo individuo alla distanza di 25 centim, della spirale indotta dall'inducente provava tale sensazione molesta da non poter reggere alla scossa elettrica. A questa stessa distanza tutti gli altri individui non provavano effetto veruno sensibile. E con questa azione che diremmo tenuissima l'effetto sull'organismo fu tale da ap-

palesarsi con dolori nel basso ventre, e scarica straordinaria come se avesse preso un purgante. Del resto la facoltà digestiva non fu accresciuta come accade in taluni individui. Si scorge da tutto questo quale debba essere la circospezione e cautela nell'applicare l'elettricità agli umani organismi. Io debbo ricordare un fenomeno al tutto speciale, che ha presentato l'individuo di rara squisitezza nerveo-muscolare elettrica, per l'interesse che esso presenta alla spiegazione di un effetto che è stato argomento di gravi discussioni in Italia e fuori, voglio dire del simultaneo passaggio di due o più correnti elettriche opposte incanalate sul medesimo filo conduttore. L'apparato del quale mi valsi fu il mio induzionometro dinamico differenziale, che è formato di tre spirali piane. E ben noto che allorquando la corrente elettrica cammina nelle due spirali inducenti nel medesimo senso, si ha una corrente elettrica nella spirale indotta che è compresa o collocata nello spazio interposto alle due spirali inducenti. Effetto indotto, che è tanto maggiore quanto è maggior la tensione della scarica Leido-elettrica, e minore la distanza che separa la spirale indotta dalle inducenti. E ugualmente noto che allorquando nelle due spirali inducenti la corrente elettrica è diretta in senso opposto, e che sieno ambedue le spirali equidistanti perfettamente dalla spirale indotta, la persona che chiude il circolo con questa spirale non si risente di effetto veruno. La spiegazione di questo fatto fu data col ritenere che nella spirale indotta, o non circoli la più minima elettricità, o che circolino due correnti uguali e contrarie da non produrre effetto percettibile sull'umano organismo, analogamente a quanto accade sull'ago magnetico sottoposto a due correnti uguali e contrarie, che rimane in perfetto equilibrio. L'individuo della squisitezza nerveo-muscolare speciale ebbe ad accusare una sensazione distinta al carpo e metacarpo di ambe le mani. L'esperimento fu ripetuto per assicurarsi della costanza dell'effetto.

Quale sarebbe la spiegazione che si potrebbe ragionevolmente dare di questo fenomeno? Mi sembra potersi dire che due correnti sovrapposte in direzione contraria non si distruggono, come nell'acustica l'onda riflessa non viene distrutta dall'onda diretta; ma che però una tale sensazione richieda un'organismo, che si tolga dai limiti ordinarj o comuni. Egli è vero che si potrebbe dire che si hanno correnti elettriche indotte all'atto che incomincia la scarica della bottiglia di Leida, e all'atto che intieramente cessa. Queste due azioni che devono essere separate da una frazione ben minima di minuto secondo sarebbero esse la cagione della sensazione prodotta nel caso speciale? L'intervallo che separerebbe le opposte correnti sarebbe di 3 diecimil-

lesimi di minuto secondo, calcolata la media velocità dell'elettrico di 100,000 metri per 1″.

Ho amato successivamente di confrontare la sensibilità nerveo-muscolare elettrica colla forza meccanica degl'individui, sottoposti precedentemente agli esperimenti. Io non ho trovato che la sensibilità nerveo-muscolare sia nè nella ragione diretta, nè nella ragione inversa della forza meccanica. L'individuo che si risentì della corrente indotta alla distanza di 0,30, al dinamometro di Renier appalesò una forza muscolare nelle mani rappresentata da 82 kilogrammi; e l'individuo che si risentì della corrente indotta alla distanza di 0,07 centimetri dispiegò al dinamometro una forza di 92 kilogrammi.

Io rappresenterò in un prospetto la serie di questi esperimenti comparativi, indicando almeno alcuni de'nomi de'giovani che si sottoposero a questi saggi:

	Distanza della spirale indotta dall'inducente.	Misura della forza col dinamometro.
Majola,	0,07	92 kilogrammi.
Stella,	0,12	74,5 „
Gerloni,	0,30	82 „
Polonio,	0,055	77 „

Altri individui che si prestarono all'esperienze dei limiti della loro sensibilità nerveo-muscolare elettrica, si rifiutarono al confronto della forza meccanica determinata col dinamometro.

Aveva negli anni precedenti fatti consimili esperimenti, ed ho la compiacenza di potere soggiugnere che la natura si ebbe a manifestare col medesimo piano. Anzi nelle mie investigazioni che ho pubblicato nel 1852 nei Conti Resi dell'Accademia delle Scienze di Parigi riscontrai questa correlazione, che l'esaurimento della forza meccanica si accompagna coll'esaurimento della forza elettrica; e per converso che il rinvigorimento della forza meccanica si accompagna tuttavia coll'aumento della forza elettrica. Io pero di questo esaurimento e di questo rinforzo comparativo non ho determinato in gradi il valore.

Dalla slitta di Dubois Raymond si ottenne fino il *fa diesis* della tonico 524, che dà 728 vibrazioni composte, ossia 1456 vibrazioni semplici, rappresentanti il numero delle magnetizzazioni e smagnetizzazioni in un minuto secundo. Il magnetismo temporario impertanto accoppiato all'acustica ci fornisce un mezzo potente alla misura delle più piccole frazioni di tempo, per le quali non si prestano i congegni applicati ai pendoli comuni. Noi attendiamo con impazienza l'apparato dell'ingegnosissimo meccanico Hipp di Berna.

Of the Measure of the Limits of the Electric Nervo-muscular Sensibility in Man, compared with his Mechanical Force.

Experiments of Zantedeschi.

The measure of the limits of the electric nervo-muscular sensibility in man has a close relation to Physiology and Therapeutics. The first obtains the means of ascertaining in a positive manner the various degrees of sensibility of the human organism; as it has obtained proof of the sensibility of the acoustic nerve from the extension of the scale of perceptible sounds, and has determined the number of the vibrations which is necessary for the perception of a grave sound, and of an acute one. Therapeutics procures a guiding rule for the prudent application of electricity to different persons. I call to mind an individual whose nervo-muscular sensibility was such that he could not bear the electric motor force of a single combination of copper and zinc with salt water. The electrodes were applied to the eyebrow of an eye affected with paralysis.

For investigating the subject of the limits of nervo-muscular sensibility in the human subject, May 27, 1857, I caused to be constructed the apparatus of Dubois Raymond, with an ordinary element in the fashion of Bunsen, consisting of sulphuric acid of 40° B. and of water acidulated with sulphuric acid of 10° B. and thoroughly amalgamated zinc. The inducting spiral was of copper wire of the following dimensions:

Length of the spiral, - - -	0.0800 metres.
Internal diameter of the spiral, -	0.0250 „
Diameter of the copper wire, - -	0.0010 „
Length of the copper wire, - -	26.0000

Dimensions of the inducted spiral:

Length of the spiral, - - -	0.0700 metres.
Internal diameter of the spiral, -	0.0600 „
Diameter of the copper wire, - -	0.0033 „
Length of the copper wire, - -	1187.4400

In the interior of the inducting spiral there was a soft iron wire with a diameter of 0.0015, and the length of 0.10 of a metre, and the number 190.

Twelve individuals were subjected to this experiment. There was no positive rule of decrease of sensibility that would imply a minimum degree in those advanced in life. I myself, 60 years of age, felt the inducting volto-electric action at a distance at which it was quite in-

appreciable by a young man 20 years old. Nor have I even found the nervo-muscular sensibility to be in inverse proportion to the dynamic force, as measured by a dynamometer. It follows, that there is a quite peculiar and special ratio for which we can assign no reason, and we are constrained to say there is none to be found. The ascertained limits, among twelve persons, were from a distance of 0.04 metres to that of 0.30 metres, between the inducting and the inducted spirals. These extremes will give the proportion of nervo-muscular sensibility of 1 : 56,25 calculated according to the law of the inverse ratio of the squares of the distance. An electric tension, therefore, 56,25 times greater in one would produce an equal degree of tension as a simple unit in another; which is equivalent to saying that the electric nervo-muscular sensibility in one individual was 56,25 times greater than in another. This individual at the distance of 25 centimetres of the inducted from the inducting spiral, experienced such a distressing sensation that he could not bear the electric shock. At the same distance, all the other individuals experienced no sensible effects whatever: and with this, which might be termed the most attenuated action, the effect on the organism was such that it gave rise to pains in the bowels and copious evacuations as if a purgative had been taken. In other respects the activity of the digestive function was not increased, as is the case in some individuals. We learn from all this what circumspection and caution ought to be exercised in the application of electricity to the human frame. I must here record a phenomenon of quite a special character, which was exhibited in the individual who was endowed with such rare electric nervo-muscular sensibility, on account of the interest which it excites towards the explanation of a result that has given rise to grave discussions, both in Italy and in other countries. I refer to the simultaneous passage of two or more opposite electrical currents through the same wire. The apparatus which I made use of was my differential dynamic inductionmeter, which is made of three plane spirals. It is well ascertained that when the electric current travels along, in the same direction, two inducting spirals, there is an electrical current in the inducted spiral which is comprised in and restricted to the space interposed between the two inducting spirals—an effect by induction which is greater in proportion to the increased tension of the Leyden electrical discharge, and diminished distance between the inducting and the inducted spiral. It is equally well known that when the electric current is sent in opposite directions along two inducting spirals, and that these latter are precisely equidistant from the inducted spiral, the person who completes the circle by this spiral experiences no effect what-

ever. The explanation of this fact was given by supposing that in the inducted spiral, either electricity does not circulate in the minutest degree or that two equal opposing currents produce no effect on the human organism; reasoning by analogy from what occurs when the magnetic needle, which, subjected to two equal and opposite currents, remains in a state of perfect equilibrium. The individual endowed with special nervo-muscular sensibility had a distinct sensation at the wrist and metacarpal portions of both hands. The experiment was repeated in order that we might be assured of its accuracy.

What probable explanation can we give of this phenomenon? It appears to me that we are authorized to say, that two currents, taking opposite directions, do not neutralize each other, just as in acoustics the reflected wave is not destroyed by the direct one; but still the experiencing of such a sensation supposes an organism of unusual delicacy. We may, indeed, say that there are electrical currents, by induction, at the beginning and at the termination of the discharge from the Leyden jar. Could these two actions, which must be separated from each other by a very minute fraction of time, be the cause of the abovementioned special sensation? The interval which separates the opposite currents would be .0003 of a second, on the supposition that the medium velocity of the electric fluid is 100 metres in a second.

I have felt gratified in comparing the electric nervo-muscular sensibility with the mechanical power of the individuals subjected to the preceding experiments. I have not found any assignable proportions, either in a direct or inverse sense, between the two. The person who felt the inducted current at the distance of 0.30, displayed by the dynamometer of Renier a muscular power of the hand equal to 82 kilogrammes; and the one who felt the inducted current at the distance of 0.07 centimetres, exhibited, by the dynamometer, a power equal to 92 kilogrammes.

I will exhibit, at a glance, the series of these experiments, and indicate some, at least, of the names of the young men who have been subjected to them.

	Distance of the inducted from the inducting spiral.	Dynamometrical measure of force.
Majola,	0.07	92 kilogrammes.
Stella,	0.12	74.5 „
Gerloni,	0.30	82. „
Polonio,	0.055	77. „

Other individuals who had submitted to the experiments on the

limits of the electric nervo-muscular sensibility, refused to make a trial of their mechanical power, as determined by the dynamometer.

I had made similar experiments in former years, and it gives me pleasure to be able to add that they are in harmony with nature's arrangement. Thus, in my investigations which were published in the *Comptes Rendus* of the Academy of Sciences of Paris, for 1852, I met with this co-relation, *viz:* in the exhaustion of the mechanical power being accompanied by the exhaustion of the electrical force; and, conversely, in the increase of mechanical power being always accompanied by that of the electric force. I have not, however, determined as yet, in degrees, the relative amount of this exhaustion and increase.

By the apparatus of Dubois Raymond, we obtain, at length the *sharp in fa* of the tonic 524, which gives 728 compound, or 1456 simple vibrations, representing the number of magnetizings and their withdrawals or abstractions in a second of time. Temporary magnetizings, however, coupled with acoustics, may form a powerful means of measuring the minutest fractions of time, the like of which is not procured from common pendulums. We wait impatiently for the apparatus of the ingenious mechanician Hipp, of Berne.

The reporter for the Proceedings of the Society laid upon the table No. 58, recently published.

The unfinished business of the last stated meeting being under consideration, it was agreed that a Committee of seven members shall be appointed by the presiding officer, to revise the laws of the Society relative to the duties of Treasurer and Librarian.

Stated Meeting, March 19.

Present, twenty members.

The Vice-Presidents being absent, Dr. WILLIAM HARRIS was called to the chair.

Letters were read:—

From the Horticultural Society of London, dated February 2, 1858, returning thanks for Vol. XI. Part 1, of the Transactions of this Society:—

From the Connecticut Historical Society, dated Hartford,

March 11, 1858:—from the Corporation of Harvard College, dated Cambridge, March 11, 1858:—and from the American Antiquarian Society, dated March 12, 1858, severally acknowledging the receipt of No. 58 of the Proceedings.

The following donations were announced:—

FOR THE LIBRARY.

Catalogue des livres composant la Bibliothéque Scientifique du feu M. Alexandre Brongniart. Paris, 1858. 8vo.—*From the Librarian of the Institute.*

Report of the Superintendent of the United States Coast Survey for 1856. Washington. 4to.—*From Prof. A. D. Bache, Superintendent.*

Journal of the Franklin Institute. Third Series. Vol. XXXV. No. 3. March, 1858. Philadelphia. 8vo.—*From the Institute.*

Second Annual Report of the M'Kean and Elk Land and Improvement Company, 1858. Philadelphia. 8vo.—*From the Company.*

Description of New Organic Remains from north-eastern Kansas, indicating the existence of Permian rocks in that territory. (Proc. Alb. Inst. March 2, 1858.) By F. B. Meek and F. V. Hayden, M.D.—*From the Albany Institute.*

Remains of Domestic Animals discovered among Post Pliocene Fossils in South Carolina. By Francis S. Holmes, A.M. With letters from Profs. Leidy and Agassiz. Charleston, 1858. 8vo.—*From the Author.*

The Principles of Social Science. By Henry C. Carey. In three volumes. Vol. I. Philadelphia, 1858. 8vo.—*From the Author.*

The African Repository. Vol. XXIV. No. 3. March, 1858. Washington. 8vo.—*From the Am. Colonization Society.*

Reminiscenses of Carpenters' Hall. Philadelphia, 1858. 8vo.—*From the Carpenters' Company.*

Mr. Colwell, pursuant to appointment, read an obituary memoir of Mr. Isaac R. Davis, a deceased member of the Society.

Isaac R. Davis, whose loss we now deplore, departed this life on the 4th of February, 1857. He was born in the year 1809, in the County of Montgomery, in the State of Pennsylvania. Evan Davis, his father, was a respectable member of the Society of Friends. His early education was received at a Friends' school in West Town, Chester County. He was at an early age apprenticed to a merchant

in Philadelphia, and duly fulfilled his duties in that position to the end of the time. He soon after occupied a very responsible station in one of the largest mercantile establishments in the city; and became subsequently a partner in the firm, in which he continued to the time of his decease. In this concern, which wields a large business and a large capital, Mr. Davis found scope for his talents as a man of business, and for his usefulness as a wise and good citizen. He will not be forgotten in either capacity by those who were brought into close relation with him: and especially will he be remembered by those who were capable of comprehending a character so finely balanced, and a mind so well endowed.

Mr. Davis was eminently a man of business. No one in the community stood higher as such. He exemplified the truth, that moral and intellectual qualities and powers of a high order are not wasted, nor their value diminished, by being united in a merchant or manufacturer. It may be true that such occupations are not so well fitted to excite and improve the higher powers of the mind, but if so, it is because the conceptions ordinarily formed of the purpose and conduct of business falls below the proper standard. There is not a business, not a station of life, which may not be enobled by a man of high honour and great abilities. Mr. Davis was precisely of the mould to become an example in that respect. His mind was of that clear, discriminating cast, which enabled him to comprehend his position in business, in society, and in the body politic, to perceive and distinguish between the claims thus made upon him. His intellect was well balanced and his character and conduct equally so. His mind sunk into no mere channel of routine, it did not become inactive for want of stimulus. His powers of observation, strong and pervading, suffered no subject or process to lose its interest by familiarity, and thus escape fresh and constant investigation. His views of business, of the claims of society, and of the working of the social system around him, were therefore even enlarging. His physical were far below his mental capacities, yet until struck down by paralysis, he never faltered nor hesitated to exact from his body whatever his mind required.

The points of contact between a man of his order of mind and a mind of similar power, devoted chiefly to science or philosophy, are not few. The progress of knowledge and science is such, that every department of business has its interests in and its relations with this progress; the mind that has any philosophic tendencies is now constantly invited to exert and apply them. Mr. Davis belonged to a

class, which, though as yet not numerous, is increasing, which looks upon the whole field of daily business with an eye to its improvement, not only by better methods, but by an application of all accessible and available knowledge. The man whose mind is thus awakened must rapidly attain an enlargement of his faculties and comprehension, which cannot fail to be visible, and to be marked with beneficial results, private and public. It is in this direction that we are to look for the progress of the highest proofs and benefits of civilization, as it pervades the masses of men who do the business of the world and who perform its labour. In this important path of such vital interest to human welfare, we find Mr. Davis conspicuous. It is this which establishes a legitimate connection between him and the American Philosophical Society, which is ever willing to extend the hand of fellowship to the philosophic mind, in whatever department of life it may be found.

Mr. Davis occupied a high position in this community as a merchant and as a manufacturer, but not without a full appreciation of the advantages and duties of such a position. While private interests were earnestly and industriously promoted, questions of public concern never failed to draw his attention in proportion to their importance. He was ever ready to give the benefit of his strong common sense, and his clear discrimination, to any measure which promised public advantage. Although he constantly declined office, he regarded public affairs with an interest scarcely less than he gave to his private business. It is well known to those who knew Mr. Davis best, that few men not in public life exerted a wider influence in public affairs. This involved an extensive and frequently elaborate correspondence, from the labour of which he never shrunk when a good end was in view. This influence was due chiefly to his clear views of public questions, and that knowledge of men and their motives which made him a safe and valuable adviser for men in responsible stations.

Mr. Dunlap was excused from preparing an obituary notice of the late Dr. Nathaniel Chapman, and Dr. J. B. Biddle was appointed to perform that duty.

Mr. Dunlap and Dr. Biddle were appointed in the place of the deceased members of the Committee to procure a portrait of Dr. Chapman.

Judge King called the attention of the Society to the present condition of the negociation with the Government of the United

States for the sale of the Hall of the Society, and to the delay of the government official authorities in carrying into effect the articles of agreement entered into for such sale:

Whereupon, after some discussion of the subject, the following resolution, offered by Mr. Foulke, was read, considered and agreed to:—

Resolved, That Judge King be added to the Committee on the sale of the Hall, and that the Committee be authorized to take such proceedings as they may deem expedient to secure an early settlement of the negociation respecting the proposed sale to the government.

A resolution was offered by Dr. Morris, as follows:

Resolved, That a Committee be appointed to confer with the Philadelphia Library Company, and the College of Physicians, on the subject of buildings for the accommodation of the respective bodies:

Which resolution was postponed for consideration at the next meeting of the Society.

Stated Meeting, April 2.

Present, forty-eight members.

Prof. CRESSON, Vice-President, in the Chair.

Letters were read:—

From the Corporation of Yale College, dated New Haven, March 16, 1858;—and from the Lyceum of Natural History, dated New York, March 27, 1858, both acknowledging the receipt of No. 58 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Report on the Observatories of his highness the Maha Rajah of Travancore. By John Allan Brown, Director of the Observatories. Trevandrum, 1857. 8vo.—*From the Author.*

Journal of the Royal Astronomical Society. Vol. XVIII. No. 4. Feb. 2, 1858, with Index of Papers. 8vo.—*From the Society.*

Astronomical Journal. Vol. V. No. 15. March 24, 1858. Albany, 1858. 4to.—*From Dr. A. B. Gould.*

Transactions of the Academy of Science of St. Louis. Vol. I. No. 1. St. Louis, 1857. 8vo.—*From the Academy.*

Annual Report of the President of the Maryland Historical Society, with Constitution and By-Laws. Baltimore, 1858. 8vo.—*From the Society.*

Second Annual Report of the Trustees of the State Industrial School for Girls, at Lancaster, Mass. By Bradford K. Pierce. Boston, 1857. 8vo.—*From the Superintendent.*

Report of the Superintendent of the North Branch Canal for the year ending Nov. 30, 1855, by W. R. Maffet, C. E. Harrisburg, 8vo.—*From C. B. Trego.*

Second Annual Report of the Home for Destitute Colored Children, by the Managers. Philadelphia, 1857. 8vo.—*From the Managers.*

Sense and Sound as they reciprocally form any sign of mind. By John Gaskill. Philadelphia, 1854. 8vo.—*From Mr. Huff.*

Letters to the President on the Foreign and Domestic Policy of the Union, and its effects as exhibited in the condition of the people and the State. By H. C. Carey. Philadelphia, 1858. 8vo.—*From the Author.*

Track Survey of the River Paraguay, surveyed by Commander Thos. J. Page, U. S. S. Water Witch, 1855. Sheets, Nos. 10, 14 and 15.—*From the Navy Department.*

Medical News and Library. Vol. XVI. No. 184. April, 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*

American Journal of the Medical Sciences. LXX. April, 1858. Philadelphia. By Dr. Isaac Hays.—*From the Editor.*

Experiments upon Digestion. By Francis G. Smith, M.D. Philadelphia, 1856. 8vo.—*From the Author.*

Dr. Boyé exhibited a series of models which he has had constructed for the purpose of illustrating the forms of crystals and the laws of crystallography; in connection with which he explained the relation of various forms to each other, and their modifications and combinations in a variety of crystaline substances of different primary forms.

The Special Committee appointed in pursuance of a resolution adopted March 5, 1858, on the duties of the Treasurer

and Librarian, made a report recommending sundry amendments of the Laws of the Society, together with certain resolutions relating to the subject.

The report of the Committee was unanimously accepted, and laid over for further action at the next stated meeting.

The resolution offered by Dr. Morris, at the last meeting, was further postponed.

On motion of Dr. Wm. Harris, a committee, consisting of Dr. Harris, Mr. Dunlap and Mr. Patterson, was appointed to procure a portrait of Judge Kane, late President of the Society.

On motion it was resolved that the Librarian be authorized to take order on the distribution of the published Proceedings of the Society.

Mr. Justice, at his request, was excused from further service as a member of the Committee on the purchase of a hall.

Stated Meeting, April 16.

Present, thirty-five members.

Dr. Dunglison, Vice-President, in the Chair.

Letters were read:—

From the Royal Danish Society of Sciences, dated Copenhagen, June 30, 1857;—from the Society of Naturalists at Riga, dated July 3, 1857;—from the Imperial Academy of Sciences dated Vienna, Sept. 17, 1857;—from the Royal Saxon Society of Sciences, dated Leipzic, Oct. 1, 1857;—from the Academy of Arts, Sciences and Belles-lettres of Dijon, dated Jan. 17, 1857;—and from the Imperial Royal Lombardy Institute of Science, Letters and Arts, dated Milan, Jan. 20, 1858, severally accompanying donations for the library:—

From the Imperial Society of Naturalists of Moscow, dated March 3–15, 1857;—from the Royal Academy of Sciences at Turin, dated May 15, 1857;—from the Royal Danish Society of Sciences, dated Copenhagen, June 30, 1857;—from the Royal Saxon Society of Sciences, dated Leipzig, Oct. 1, 1857; and from the Massachusetts Historical Society, dated Boston,

March, 1858, respectively acknowledging the receipt of Transactions and Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Sitzungsberichte der K. Akad. der Wissenschaften. Math. Naturwiss. Classe, XXIII. 2 H. XXIV. 1, 2, 3, 1857. Phil. Historische Classe, XXIII. 1, 2, 3, 4, Jan. Feb. March, April, 1857. Vienna, 1858. 8vo.—*From the Academy.*

Berichte über die Verhandlungen der Kön. Sächsischen Gesellschaft der Wiss. zu Leipsig. Math. Phys. Classe, 1856, II. 1857, I. 8vo.—*From the Society.*

Methode zur Berechmung der absoluten Störungen der Kleinen Planeten; 2 part. By P. A. Hansen. Leipsig, 1857. 8vo.—*From the same.*

Electrische Untersuchungen; 2 part. By W. G. Hankel. Leipsig, 1857. 8vo.—*From the same.*

Correspondenzblatt des Naturforschenden Vereins zu Riga. Ninth Year, 1855-6. Riga, 1857. 8vo.—*From the Society.*

Memoir of Dr. Magnus Georg von Pancker, born Nov. 15, 1797, died Aug. 22, 1855. Dorpat, 1855. 8vo.—*From the same.*

Verhandlungen des Vereins zur Beförderung des Gartenbaues in den Kön Preussischen Staaten. First year, I. to XII. 1853; Second year, Jan. to Dec. 1854; Fourth year, July to Dec. 1856. Abhandlungen, No. 19 to 33, 34 to 43. Berlin.—*From the Society.*

Oversigt over det K. Danske Videns. Selskabs Forhandlinger . . i Aaret, 1856. Kopenhagen, 1857. 8vo.—*From the Society.*

Supplement aux Tables du Soleil de M.M. P. A. Hansen et C. F. R. Olufsen, par P. A. Hansen. Copenhagen, 1857. (8 pages.) 4to.—*From the same.*

Quæstiones quæ in A. 1857 proponuntur cum præmii promissu. Copen. 1858. (4 pages.) 8vo.—*From the same.*

Verslagen en Mededeelingen der Kon. Akad. van Wetenschappen. Letterkunde. 2 D. 2, 3, 4 Stuk. Natuurkunde 5 D. 2, 3 S. 6 D. 1, 2, 3 Stuk. Amsterdam, 1857. 8vo.—*From the Academy.*

Octaviæ Querela carmen cuius auctori Johanni van Leeuwen e Vico Zegwaart, certaminis poetici præmium e legato J. H. Hoeufft adjudicatum . . . IX Marti 1857. Amsterdam, 1857. (14 pages) 8vo.—*From the same.*

Memorie della Reale Accademia della Scienze di Torino. 2 Ser. T. XVI. Turin, 1857. 4to.—*From the Academy.*

Memoires de l'Academie des Sciences, Arts et Belles-lettres de Dijon. 2d Ser. T. 1, 1851. T. 2, 1852-3. T. 3, 1854. T. 4, 1855. T. 5, 1856. With Atlas. Dijon and Paris, 1857. 8vo.—*From the Academy.*

Description d'un Nouveau Genre d'Edenté Fossile renfermant plusieurs espéces voisines du Glyptodon. Atlas. Dijon et Paris, 1857. 4to.—*From the Academy.*

Archives du Muséum d'Histoire Naturelle. T. IX. liv. IV. Paris, 1856-7. 4to.—*From the Museum.*

Proceedings of the Eleventh Meeting at Montreal of the American Association. Aug. 1857. Cambridge, 1858. 8vo.—*From the Secretary.*

Proceedings upon the Dedication of Plummer Hall at Salem, Oct. 6, 1857, including Rev. Mr. Hopkin's Address and Judge White's Memoir of the Plummer Family. Salem, 1858. (97 pages.) 8vo.—*From the Salem Lyceum.*

Memoir of the Baron De Kalb, read at the meeting of the Maryland Historical Society Jan. 7, 1858, by J. Spear Smith. Baltimore, 1858. (36 pages.) 8vo.—*From the Society.*

Tenth Annual Report of the Massachusetts School for Idiotic and Feeble Minded Youth. Boston, 1858. (33 pages.) 8vo.—*From Dr. S. G. Howe.*

The Rocks of Kansas, by G. C. Swallow and F. Hawn, with descriptions of new Permian Fossils by S. C. Swallow. St. Louis, 1858. (30 pages.) 8vo.—*From the Authors.*

The Astronomical Journal. No. 112. Albany, April 2, 1858. 4to. —*From the Editor.*

Journal of the Franklin Institute. Vol. 65. 388. April, 1858. No. 4. Philadelphia, 1858. 8vo.—*From the Institute.*

Dr. Bell announced the decease of Dr. John K. Mitchell, a member of the Society, who died on the 4th instant, aged 65: —and, on motion, Dr. Dunglison was appointed to prepare an obituary notice of the deceased member.

The Society then proceeded to ballot for candidates for membership.

The amendments to the Laws of the Society, proposed in the report of the Committee read at last meeting, next came up

for consideration; and being read separately, and the question taken upon each amendment, they were all adopted as follows:

CHAP. II. SECT. 6. Of the day, hour and place of election, notice shall be given by the Librarian, at least one week before the day of election, in such one or more of the public newspapers of the State of Pennsylvania as the Society shall direct.

CHAP. IV. SECT. 1. The Secretaries shall minute the proceedings of the Society at the meetings: they shall read all papers which are required to be read at the meetings, and shall preserve, in regular files, all documents presented to the Society; they shall give notice to members of their election, acknowledge in writing the reception of all communications, and generally conduct the correspondence of the Society.

CHAP. IV. SECT. 3. *Stricken out.*

CHAP. VI. SECT. 6. (*Treasurer.*) He shall, as a full compensation for his services, receive five per cent. on the amount of the annual income of the Society collected by him.

CHAP. VIII. SECT. 1. A member of the Society shall be chosen at the stated meeting on the third Friday of January in each year, to be the Librarian of the Society: nominations for said office shall be made at the first stated meeting in January, and no person shall be voted for who has not been so nominated.

SECT. 2. He shall have, under the direction of the proper standing Committees, the custody and care of the Hall and of the books and papers belonging to the Society, which he shall dispose and arrange in such a manner as shall be judged most convenient, and shall keep an arranged catalogue of them, with the names of the donors. He shall assist the Curators in their charge of the cabinet.

SECT. 3. He shall attend at the library, at every meeting of the Society, and daily, excepting Sundays, from 10 A. M. to 1. P. M. except when allowed leave of absence by the presiding officer of the Society, and shall then, &c. &c., (as at present).

SECT. 7. He shall transcribe carefully and correctly the minutes of the Society, as made by the officiating Secretaries. He shall acknowledge the receipt of all donations made to the Society, and transmit copies of its Transactions and Proceedings as directed, and shall from time to time perform such other executive or ministerial duties as may be charged on him by the vote of the Society given according to the laws.

SECT. 8. He shall, under the direction of the Secretaries, act as re-

porter of the proceedings of the Society, and shall cause such abstract of the Proceedings to be published for the use of the members and for distribution to correspondents as the Secretaries may deem expedient or proper, or as the Society may direct; but no expense shall be incurred, or any contracts made for printing or publishing the same, beyond the sum appropriated by the Society for such purposes.

SECT. 9. He shall receive an annual salary of seven hundred dollars, to be paid monthly from the treasury of the Society, and his services shall commence the first Monday after his election.

The preamble and resolutions attached to the report of the Committee were also unanimously adopted.

All other business having been concluded, the ballot box was opened by the presiding officer, who declared that PROF. WILLIAM H. ALLEN, of Philadelphia, was duly elected a member of the Society.

Stated Meeting, May 7.

Present, twenty members.

Prof. CRESSON, Vice-President, in the Chair.

Letters were read:—

From Prof. W. H. Allen, dated Girard College, April 19, 1858, acknowledging the receipt of notice of his election as a member of the Society:—

From the Geographical Society of Paris, dated Nov. 24, 1857,—and from the Leeds Philosophical Society, dated Dec. 8, 1857, both returning thanks for Vol. XI. Part 1, of the Transactions of this Society:—

From the Horticultural Society at Berlin, dated Sept. 28, 1857, acknowledging the receipt of Nos. 51–55 of the Proceedings of this Society, and also announcing a donation for the library:—

From the Royal Academy of Sciences, at Amsterdam, dated Aug. 15, 1857, accompanying a donation for the library:—

From the Royal Norwegian University at Christiania, announcing the presentation by the University to this Society, of a Bronze Medal, struck on the occasion of the celebration of

the semi-centennial anniversary of the official term of Dr. Christopher Hansteen, Professor of Astronomy in that University:

From Col. J. D. Graham, dated Chicago, Illinois, March 10, 1858, accompanying sundry maps and charts referred to in his reports on lake and harbour improvements, presented for the library of the Society:—and from the same, dated Chicago, April 2, 1858, announcing a donation for the library, and containing a communication in reference to the determination of the longitude of the City Hall or Court House at Chicago:—

From Dr. Nicholas Manzini, dated Havana, Dec. 10, 1857, announcing the presentation, for the library, of two copies of his History of Inoculation as a preservative from Yellow Fever:

From the Boston Society of Natural History, dated May 1, 1858, returning acknowledgment for No. 58 of the Proceedings of this Society:—

From Prof. Zantedeschi, dated Padua, April 9, 1858, on transmitting a donation for the library;—and

From Dr. Isaac I. Hayes, proposing to make an effort to reach the north pole of the earth, and requesting to be informed of any measures which, in the judgment of the Society, it will be expedient for him to adopt, to promote the advancement of any of the sciences for whose interests it labours.

The following donations were announced:—

FOR THE LIBRARY.

Collections of the Massachusetts Historical Society. Vol. IV. of the IV. Series. Boston, 1858. (514 pages.) 8vo.—*From the Society.*

Thirteen Charts of Chicago, Sheboygan, Manitowoc, St. Josephs, Black Lake, Grand River, Kallamazoo, Kenosha, and New Buffalo Harbors, made under the direction of Br. L. Col. J. D. Graham. Chicago, 1855, 6, and 7.—*From Col. Graham.*

Geological Survey of Canada. Report of progress for 1853–6. Toronto, 1857. (500 pages, with a 4to. volume of plans.) 8vo.—*From Sir W. Logan.*

Plans of various Lakes and Rivers between Lake Huron and the River Ottawa, to accompany the Geol. Reports for 1853–6. 4to. *From T. Sterry Hunt.*

Annales des Mines. V. Ser. Vol. X. 1, Vol. XI. 2, 3, 4, Vol. XII. 5. Paris, 1857. 8vo.—*From the Engineers.*

Histoire de l'inoculation preservative de la Fièvre Jaune, pratiquée, a l'hôpital Militaire de la Havane, redigée par Nicolas B. L. Manzini. Paris, 1858. (240 pages.) 8vo.—*From the Author.*

A brief Memorial of the late Judge John K. Kane, Vice-President of the Pennsylvania Institution for the Instruction of the Blind, prepared by Robley Dunglison, M.D. Philadelphia, 1858. 4to.—*From the Author.*

Notice sur les Mines de Cuivre du Cap de Bonne Espérance, par M. Delesse. Paris, 1858. (30 pages.) 8vo.—*From the Author.*

Proceedings of the Royal Geographical Society of London. June, 1857. No. XI. London, 1858. 8vo.—*From the Society.*

Report of the Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1856–7. Leeds, 1857. 8vo.—*From the Society.*

Leeds Philosophical and Literary Society Annual Report for 1856–7. Leeds, 1857. 8vo.—*From the Society.*

Maryland Institute. Transactions. Eighth Annual Report. Reports of the Committees on the Exhibitions of 1855 and 1856. Address before the Female Department of the School of Design. Baltimore, 1856. 8vo.—*From the Institute.*

Maryland Institute Library Catalogue. Part 1. Alphabetical. Baltimore, 1857. 8vo.—*From the same.*

Harbors of Lakes Michigan, St Clair, Erie, Ontario and Champlain. Last Annual Report of Lieut. Col. J. D. Graham. Cong. Doc. H. of Rep. Ex. Doc. No. 23. Jan. 11, 1858. Washington, 1857. (180 pages.) 8vo.—*From Col. J. D. Graham.*

The American Almanac for 1848, with MSS. corrections by Col. Graham of the lat. and long. of Chicago, &c., dated Jan. 30, and June 5, 1857.—*From Col. J. D. Graham.*

Memoirs of the Historical Society of Pennsylvania. Vol. V. Philadelphia, 1858. Large 8vo.—*From the Society.*

Journal of the Franklin Institute. No. 5. Philadelphia, May, 1858. 8vo.—*From the Institute.*

American Journal of Science and Arts. Vol. XXV. No. 75. May, 1858. New Haven. 8vo.—*From the Editors.*

Notices of the Meetings of the Members of the Royal Institution of Great Britain. Part VII. Nov. 1856. July, 1857. London, 1857. 8vo.—*From the Institution.*

A Catalogue of 3735 Circumpolar Stars observed at Redhill in 1854–5–6, and reduced to mean positions for 1850.0, by Rich. Chris. Carrington. Also 680 observed at Speyer by Prof. Schwerd,

and 50 observed at Markree by E. J. Cooper. London, 1857. (210 pages with 10 maps.) 4to.—*From the Board of Admiralty.*

Edinburg Astronomical Observations. Vol. XI. 1849–54, by C. Piazzi Smith. Edinburg, 1857.—4to.—*From the Royal Observatory.*

Royal Astronomical Society. Monthly Notices. Vol. XVIII. No. 5. March 12, 1858. 8vo.—*From the Society.*

Journal of the Society of Arts and of the Institutions in Union. Vol. V. No. 246 to 266. London, 1857. 8vo.—*From the Society.*

Medical News and Library. No. 185. May, 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*

Illinois Geological Survey. By J. G. Norwood, M.D. Chicago, 1858. (100 pages.) 8vo.—*From the Chicago Historical Society.*

General Notions of Chemistry by J. Pelouze and E. Fremy, translated by Edmund C. Evans, M.D. Philadelphia, 1854. (438 pages.) 8vo.—*From the Translator.*

Calendrier de l'Instruction Publique pour 1858. Montreal, 1858. 4to.—*From L. A. Huguet Latour.*

Estimate of certain expenses of the civil government of Canada for 1856. Toronto, 1858. (13 pages.) Large 8vo.—*From Capt. Huguet Latour.*

Essai sur les Insectes et les Maladies qui affectent le Blé, par Emil. Dupont. Montreal, 1857. (40 pages.) 8vo.—*From the same.*

Réponse a une addresse . . . relatifs a . . . . le fief sillery, pres de Quebec. Par. H. Lemesurier et autres. Toronto, 1856. (85 pages.) Large 8vo.—*From the same.*

Rapport Annuel du Magistrat Commandant l'Expédition pour la protection des Pecheries dans le Golfe St. Laurent, 1856. Toronto, 1856. (40 pages.) 8vo.—*From the same.*

Nascita, Studij, Posizione sociale e Bibliografia delle principali opere e memorie di F. Zantedeschi. Padova, 1857. 8vo.—*From Prof. F. Zantedeschi.*

FOR THE CABINET.

A Medal struck in honor of the Fiftieth Anniversary of the Installation of Prof. Hansteen of Norway.—*From the Royal Norwegian University.*

Dr. Franklin Bache announced the death of the Hon. Charles Fenton Mercer, of Virginia, a member of this Society, who died on the 4th instant, in the 80th year of his age.

Dr. B. H. Coates announced the decease of Charles Nagy of Pesth, in Hungary, a member of this Society, who died in the year 1849.

Prof. Haldeman announced the death of Don Manuel de Naxera, of Mexico, a member of the Society.

Colonel Graham, in alluding to the well known accuracy afforded by the electric telegraph in determining differences of longitude, said he had understood that the British authorities were now testing the accuracy of a number of points, determined in longitude by the officers of engineers attached by the American and British governments to their respective commissions, for ascertaining and marking the boundary under the Treaty of Washington of 1842. These points are on and near the river St. John, and at other stations where the telegraphic wires have been extended.

The tests, he understood, were being made by electric connections with the meridian of Harvard College Observatory at Cambridge, Massachusetts. Whenever the results, which may be thus obtained, shall be announced, it may be a matter of some interest to compare them with those obtained before the invention of the electro-magnetic telegraph. Previous to this invention we were obliged to depend on direct observations upon the heavenly bodies, for determining initial or primary longitudes at suitable intervals apart, and then generally to obtain intermediate points by the transmission of chronometers to and fro between these primary meridians. Now the chronometers remain at rest at the observing stations, and are compared by electric signals transmitted along the telegraphic wires, thus avoiding all errors in the run of the chronometers, produced by the jolting of vehicles, and other accidents incident to travelling with them.

Col. Graham concluded by saying that the table at pp. 366 to 369, of the American Almanac for the year 1848, gives the positions of a number of points in New Brunswick, Canada, Maine, Vermont, New York, &c., as determined by himself and his assistants on the part of the American commission of boundary, which are now being subjected to the tests above alluded to.

The following is a copy of the letter from Col. Graham, read this evening.

Chicago, Illinois, April 2d, 1858.

To Professor E. O. KENDALL,
Corresponding Secretary of the Am. Philos. Soc. Philada.

Dear Sir,—I forward herewith to your care, for the library of the American Philosophical Society, two volumes, as follows, viz.

1. A bound copy of the American Almanac for the year 1848, containing, at pages 366 to 369, a table of latitudes and longitudes of a number of places in the United States, Canada, New Brunswick, and Texas before it became a State of our Union, determined by myself and my assistants, to which I wish to invite the attention of the Society. This table stands, in this volume, corrected of a few typographical errors.

2. A bound copy of my Annual Report on Lake Harbour Improvements, for the year 1857, 8vo. pp. 174, besides an "Addenda" and an "Errata" at the end of the volume. I wish to invite the attention of the Society, also, to a report at pp. 12 to 21, and 56 to 60, of this volume, upon the determination of the longitude of the City Hall or Court House of Chicago, west of Greenwich, giving it as 5*h*. 50*m*. 32*s*.08, or, in arc, 87° 38′ 01″.2.

This result is based upon the longitude of the centre of the citadel of Quebec, as determined by myself in the year 1842, while employed in ascertaining the north-eastern boundary of the United States, under the treaty of that year with Great Britain. It will be found announced in the American Almanac for the year 1848, at pages 368, 369, as west of Greenwich,

	h.	*m.*	*s.*
	4	44	49.65

To this, assumed as a primary meridian, was added the difference of longitude obtained in May, 1857, by Lieut. E. D. Ashe, of the British Navy, and myself, by means of electric signals transmitted along the telegraphic wires, between the British Observatory at Quebec, of which he is the Director, and my observing station at Chicago, which was thus found to be - - - -

	h.	*m.*	*s.*
	1	05	41.51

Lieut. Ashe's observatory is east of the meridian of the centre of the Quebec citadel, - - - - - - —0.17

And the dome of the City Hall or Court House, of Chicago, is west of the meridian of my observing station, - + 01.09

Hence the dome of the Chicago City Hall or Court House is west of the centre of the Quebec citadel, - -	1 05 42.43	+1 05 42.43
Longitude of the dome of the City Hall or Court House of Chicago, west of Greenwich, - -		5 50 32.08

I will remark that the longitude of the citadel of Quebec is given, under the authority of Bayfield, in the *Connaissances des Temps* for the year 1842, and in the subsequent numbers, as

	h. *m.* *s.*
west of Paris, - - - - - - - - -	4 54 26
Difference allowed at the time for reducing from the meridian of Greenwich to that of Paris, + 9*m.* 21*s.*5, and hence to reduce back to Greenwich, -	— 9 21.5
Bayfield's longitude of the citadel of Quebec, west of Greenwich, - - - - - - - - -	4 45 04.5
Graham's determination of the longitude of the same point in 1842, - - - - - - - -	4 44 49.65
Difference of determinations, Bayfield west of Graham,	+ 14.85

The latitude of the centre of the citadel of Quebec was observed by me in the year 1842 (see the American Almanac for 1848, pp. 368, 369), with portable instruments, to be 46° 48′ 17″.3 N.

It is stated in the *Connaissances des Temps*, from 1842 to the present time, under the authority of Bayfield, at - - - - - - - -	46° 49′ 12″
Difference, Bayfield north of Graham, - -	+ 54″.7

The American Almanac had adopted Bayfield's latitude and longitude of this position in its general table, previous to my contribution to that work published in the number for the year 1848; and since that time it has continued Bayfield's determination in preference to mine. I should be pleased, however, if the Society should think proper to notice this paper, giving the results of my observations, made in 1842, in its proceedings.

The Latitude of Chicago.

I was induced, in January last, to make a few observations, with portable instruments, for ascertaining approximately the latitude of the City Hall or Court House of Chicago. The instruments used

were a sextant of 7½ inches radius, made especially for me by Simms (of the late firm of Troughton & Simms), of London, divided on *palladium* to read by aid of the vernier to ten seconds of arc, with an artifical horizon of mercury, and a good chronometer by Parkinson & Frodsham, of London. The observations were made on Polaris (α Ursæ Minoris), north, and (circum-meridian) on β Orionis, south. The results were as follows, viz.

Latitude of station, by observations on the 20th of January, 1858, - - - - - - - -	41° 53′ 53″ N.
Do. by observations of January 21st, 1858,	41 53 54.6
Mean, - -	41 53 53.8
By triangulation, based for orientation on the true meridian ascertained with the astronomical transit, the dome of the City Hall or Court House was found to be 4462.49 feet south of the parallel of the observing station; or, in arc, of the meridian,	— 44.1
Latitude of the City Hall or Court House of Chicago (approximate), - - - - - -	41 53 09.7 N.

In the American Almanac for 1858,* the longitude of Chicago is given west of Greenwich, - - - - - - 5*h*. 50*m*. 20*s*.

And the latitude, - - - - - - - - 42° 00′ N.

Graham & Ashe west of the American Almanac for 1858, in the longitude of Chicago, - - - + 12*s*.08

Graham south of American Almanac for 1858, in the latitude of Chicago, - - - - - - — 6′ 50″.3

The Magnetic Declination at Chicago.

This was ascertained on the 23d of July, 1857, by placing a circumferenter, furnished with a transit telescope and with a magnetic needle 4½ inches long, upon a station in the true meridian line determined with the astronomical transit. By a mean of four readings of the needle, two with the zero (o) of the azimuth circle north, and two others with it south, the following result was obtained, viz.

1857, *July* 23, *at* 4 *o'clock P. M.*—Magnetic declination at Chicago (observing station as before), 5° 46′ 07½″ E. of N.; or, say five degrees forty-six and one-tenth minutes east of north.

Very respectfully yours, &c. &c.

JAMES D. GRAHAM,

Member of the Society.

* See the table of latitudes and longitudes of places, p. 45.

Dr. Le Conte offered the following resolutions, which were read, considered and adopted:—

Resolved, That the Society receives, with much gratification, the announcement made by Dr. Isaac I. Hayes, of his purpose to attempt a further exploration of the Arctic regions, and, if practicable, to reach the north pole of the earth.

Resolved, That in the opinion of this Society such an exploration merits the zealous co-operation of the scientific men of the United States, and that at a convenient time, the Society will communicate to Dr. Hayes such suggestions respecting the promotion of its objects as may be considered useful.

Resolved, That a committee of five be appointed to co-operate with the committee recently appointed with reference to this subject by the American Association for the Advancement of Science; and to take such measures, from time to time, on behalf of this Society, as shall be deemed expedient.

The committee appointed under the above resolution consists of Prof. Frazer, Prof. Cresson, Mr. Colwell, Mr. Foulke and Dr. R. E. Rogers.

Stated Meeting, May 21.

Present, nineteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

A letter was read from Prof. John F. Frazer, dated May 8, 1858, expressing his regret at being obliged to decline the honour of serving on the committee appointed at last meeting in relation to the proposed attempt of Dr. I. I. Hayes to make a further exploration of the Arctic regions.

The following donations were announced:—

FOR THE LIBRARY.

Almanaque Náutico para 1859. Cadiz, 1857. 8vo.—*From the Observatory.*

Osservazioni ai nuovi sforzi fatti dal belli a difesa dei due esperimenti .... contro la simultanea essistenza di due opposte correnti elettriche, &c. Nota 2, del Prof. Zantedeschi. Vienna, 1858. (8 pp.) 8vo.—*From the Author.*

Researches on Primary Pathology and the Origin and Laws of Epidemics, in 2 vols. By M. L. Knapp, M.D.. Philadelphia, 1858. (650 pp.) 8vo.—*From the Author.*

The Committee on the Distribution of Lunatic Hospital Reports. By E. Jarvis, M.D. Dorchester, 1857. 8vo.—*From the Author.*

Proceedings of the Boston Society of Natural History. Vol. VI. No. 22. April, 1858.—*From the Society.*

Bulletin de la Société de Géographie, redigé par M. A. Maury et M. V. A. Malte Brun. 4 Ser. T. XIV. Paris, 1857. (548 pp.) 8vo.—*From the Society.*

Prof. Cresson announced the death of Dr. Robert Hare, a member of this Society, which occurred on the 15th instant, in the 78th year of his age.

Mr. Lesley referred to a paper read by him before the American Association for the Advancement of Science, at their late meeting in Baltimore; and, in connection with this, read some remarks upon "the insensible gradation of words in comparative philology."

On motion, Prof. Frazer was excused from serving on the committee appointed at last meeting, in relation to the proposed attempt at further Arctic exploration by Dr. I. I. Hayes, and Dr. Ruschenberger was appointed as a member of the committee.

Stated Meeting, June 18.

Present, twelve members.

Prof. Cresson Vice-President, in the Chair.

Letters were read:—

From the Imperial Geological Institute, dated Vienna, May 20, 1857:—from the Etat Major of the Corps of Mining Engineers of Russia, dated St. Petersburg, May 15–27, 1857: from the Imperial Society of Naturalists of Moscow, dated July 1–13, 1857; from the Zoological Society of Amsterdam, dated Nov. 1857: and from the Directors of the Royal Observatory, Greenwich, dated May 6, 1858, severally announcing donations for the library:—

From the Royal Prussian Academy of Sciences, dated Berlin,

Oct. 27, 1857: and from the Royal Bavarian Academy of Sciences dated Munich, Dec. 12, 1857, acknowledging the receipt of Transactions and Proceedings of this Society, and also announcing the transmission of donations for the library:—

From the Batavian Society of Experimental Philosophy at Rotterdam, dated Jan. 14, 1858, returning acknowledgements for Proceedings and Transactions of this Society:—

From Dr. Robley Dunglison, dated June 8, 1858, informing the Society that, on account of the attacks of an oft-recurring and disabling malady, it would not be in his power, after this year, to undertake the duties that appertain to any official appointment by the Society.

The following donations were announced:—

FOR THE LIBRARY.

The Samoan New Testament. London, 1849. (458 pages.) 12mo. —*From Dr. Ruschenberger.*

The Samoan Book of Ezekiel. Apia, 1849. (126 pages.) 12mo. —*From the same.*

The Samoan Catechism. London, 1856. (20 pages.) 12mo.—*From the same.*

Quarterly Summary of the Transactions of the College of Physicians of Philadelphia, from August 5, 1857 to Feb. 3, 1858. Vol. III. No. 4. Philadelphia, 1858. 8vo.—*From the College.*

Proceedings of the Boston Society of Natural History. Vol. VI. No. 20, 22. Boston, 1858. 8vo.—*From the Society.*

The Astronomical Journal. Vol. V. No. 17. May 20. Albany, 1858. 4to.—*From Dr. B. A. Gould.*

Monthly Notices of the Royal Astronomical Society. No. 6. April 9. London, 1858.—*From the Society.*

Proceedings of the American Antiquarian Society, April 28. Boston, 1858. (32 pages.) 8vo.—*From the Society.*

Quarterly Journal of the Chemical Society. No. XLI. April. London, 1858. 8vo.—*From the Society.*

Proceedings of the Royal Geographical Society. No. VII. Feb. 1857. London, 1858. 8vo.—*From the Society.*

The Historical Magazine. Vol. I. No. 5. May. New York and Boston, 1858. 8vo.—*From Col. J. D. Graham.*

Jahrbuch der Kai. Kön. Geologischen Reichsanstalt, 1856. VII. No. 4. 1857. VIII. No. 1. Wien, 1858. 8vo.—*From the Institute.*

Gelehrte Anzeigen der K. Bayer. Akad. der Wissenschaften. Vol. 44. Jan. to June, 1857. München, 1857. (623 pages.) Small 4to.—*From the Academy.*

Abhandlungen der Math. Phys. Classe der K. Bayer. Akad. der Wiss. 8 Bandes. 1 Ab. im. XXXI. Band. München, 1857. 4to.—*From the same.*

Ueber den Anbau und Ertrag des Bodens im Königreiche Bayern. By Dr. F. B. W. Von Hermann. 1 Abt. München, 1857. (24 pages.) 4to.—*From the same.*

Ueber die Physik der Molecularkräfte. Rede Vorgetragen von Prof. Dr. Jolly. München, 1857. (20 pages.) 4to.—*From the same.*

Monatsbericht der Kön. Preuss. Akad. der Wiss. zu Berlin, Jan. 1856—Aug. 1857. 8vo.—*From the Academy.*

Abhandlungen der Kön. Preuss. Akad. der Wiss. zu Berlin, 1856. 4to.—*From the same.*

Memoires de l'Acad. Impériale des Sciences de Saint Petersbourg. 6 Serie. Sci. met. et nat. T. VIII. 1 Part. Sci. math. et phys. T. VI. St. Petersbourg, 1857. (With 13 plates.) 4to.—*From the Academy.*

Annales de l'Observatoire Physique Central de Russie . . . par A. T. Kupffer. 1854, No. 1. (900 pages.) 1854, No. 2. (150 pages.) St. Petersbourg, 1856. 4to.—*From the Observatory.*

Bulletin de la Société Impériale des Naturalists de Moscou, publié sous le redaction du Dr. Renard. A. 1856, No. II. III. IV. A. 1857, No. 1. Moscou, 1856. Large 8vo.—*From the Society.*

Jaarbockje van het Genootschap Natura Artis Magistra, voor het jaar 1852–7. 6 vols. Amsterdam. 12mo.—*From the Society.*

Bijdragen tot de Dierkunde. 6 aflevering, 1854. Amsterdam, 1854. 4to.—*From the same.*

Fauna Belgica Septentrionalis Auctore R. T. Maitland. Part 1. Animalia Radiata et Annulata Cuverii. Leyden, 1851. (234 pages.) 8vo.—*From the same.*

Natuurkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem. 2 Verzam. 13 Deel. Haarlem, 1857. 4to.—*From the Society.*

Transactions of the Linnean Society of London. Vol. XXII. Part 2. London, 1857. 4to.—*From the Society.*

List of Members, 1857. 8vo.—*From the same.*

Anniversary Address of the President, May 25, 1857. 8vo.—*From the same.*

Journal of the Proceedings. Botany, Vol. I. No. 4. Vol. II. No.

5, 6. Zoology, Vol. I. No. 4. Vol. II. Nos. 5, 6. London, 1857. 8vo.—*From the same.*

Journal of the Society of Arts and of the Institutions in Union. Vol. VI. Nos 267 to 275. Jan. 1 to Feb. 26. London, 1858. 8vo. *From the Society.*

Medical News and Library. Vol. XVI. No. 186. June. Philadelphia, 1858. 8vo.—*From Blanchard & Lea.*

Papers on Practical Engineering. No. 6. Report on Casement Embrasures, by Brev. Brig. Gen. Jos. G. Totten, Col. and Chief Eng. U. S. A. Washington, 1857. (180 pages.) 8vo.—*From the Engineer Department.*

Collections of the New York Historical Society. Vol. V. An analytical Index to the Colonial Documents. By Wm. A. Whitehead. Newark and New York, 1858. (500 pages.) 8vo.—*From the Society.*

Journal of the Franklin Institute. Vol. 65. No. 390. June. No. 6. Philadelphia, 1858. 8vo.—*From the Institute.*

Dr. Le Conte announced the decease of A. L. Crelle, of Berlin, a member of the Society, who died in 1856.

Dr. Le Conte exhibited a piece of silver, said to have been brought from China, which has the form of a flattened cylinder, bent until the ends meet, and having peculiar marks stamped upon it, one of which appears to be in Chinese characters.

Mr. Justice presented for inspection sundry substances consisting of paraffine, lubricating oil, burning oil, naphtha and benzole, all produced from the cannel coal of western Virginia, and now being extensively manufactured by the Union Coal and Oil Company at their works in Maysville, Kentucky. The coal is mined on the Kanawha river in Virginia, and is sent to Maysville, where the Company is now constructing works of a capacity to produce 3000 gallons per day. This coal yields from each ton about an average of 55 gallons of crude oil, from two to three gallons of benzole, and the same quantity of naphtha; also nearly 18 pounds of pure paraffine. The burning oil loses nearly one-third in the purifying process.

Prof. Cresson was excused from serving on the committee appointed in relation to the proposed Arctic explorations of Dr. I. I. Hayes, and the presiding officer was authorized to fill the vacancy by the appointment of another member.